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REMARKS

Claims 1-19 are pending in this application. Claims 1-19 are directed towards a method of polishing a substrate including at least one metal layer. Claim 1 is currently amended.

Claims 1-19 are rejected on the grounds of 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. The Office Action states that in claim one the term "passivating film-forming agent" is confusing, and therefore, claim 1 is indefinite.

The applicants respectfully disagree. The applicants assert that the term passivating film-forming agent has been well defined. In the original application, paragraphs [0012] through [0014], and [0029] discuss the problems with CMP slurries containing passivating film-forming agents and examples of such agents, respectively. In particular, paragraph [0013] states, "(i)n the course of polishing substrates using slurries containing passivating agents such as benzotriazole (BTA), it has been discovered that the reaction of BTA with the copper surface during polishing produces a surface film which is very resistant to the mechanical action of the abrasive, making removal of the surface film difficult." Additionally, applicants have clearly defined the complexing agent and the role it plays in the invention (see for example paragraphs [0029] – [0031] in the original application). Applicants discuss that the complexing agents are useful in combination with the oxidizing agents to control surface dissolution of the copper. The complexing agents serve to form a complex with the oxidized metal and not the underlying unoxidized metal thereby limiting the depth of the oxidized layer. The applicants have furthermore exemplified the ability to omit the passivating film-forming agents such as BTA in Example 1. In this example slurries with peroxide alone or peroxide with BTA had very low Cu dissolution rates as a result of the surface film formed. The same slurries with complexing agents added had much higher Cu dissolution rates, therefore showing that it does not act as a passivating agent. The example concluded with the statement, "with this complexing agent, the passivating ability of the oxidizer is not significantly (a)ffected, and the film-forming agent, BTA, is not needed to limit the Cu corrosion rate."

The Office Action has pointed to paragraph [0064] of the published application as indicating that tartaric acid is a passivating agent. The Office Action then asserts that it would be inherent that any complexing agent would be a passivating film-forming agent. The applicants respectfully disagree with this assertion. Paragraph [0064] does not make any

Cabot Microelectronics Corporation
870 North Commons Drive
Aurora, IL, 60504
Tel. (630) 375-5465

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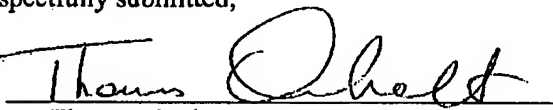
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such statement or implication. The referenced paragraph summarizes the results of Table 3 and states that "the higher the weight ratio of the peroxide to tartaric acid, the smaller the Cu removal rate (i.e. the better the passivation). This is consistent with the explanation in the previous paragraph where we discussed the role of the complexing agent in controlling the passivating layer, created by the oxidizer, by forming a complex with the newly formed Cu-oxide layer. Therefore, a thin layer is formed and the metal is polished in a controlled manner without the need for a passivating film-forming agent, such as BTA. Neither tartaric acid nor other complexing agents are passivating agents as witnessed by their ability to increase Cu polishing rates.

To advance the prosecution of this application, applicants have amended claim 1 to include the language of "a separate passivating film-forming agent in addition to the oxidizer." Support for this amendment is found in the original specification, for example at paragraph [0029]. No new matter is introduced by this amendment.

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned agent.

Respectfully submitted,

By 
Thomas Omholt (Reg. No. 37,052)
Agent for Applicant(s)

Cabot Microelectronics Corporation
870 North Commons Drive
Aurora, IL, 60504
Tel. (630) 375-5465